UNITED STATES DEPARTMENT OF AGRICULTURE
Rural Electrification Administration
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TELEPHONE ENGINEERING INFORMATION

These information letters are intended to provide a means for answering questions that arise in the field and to inform the field of new developments. They are not intended to be instructions nor to replace in any respect the approved channels for establishing requirements and procedures.

Recently Distributwd REA TE and C M Sections and Addenda.

Add. 157	Customer toll Dialing	June 1963
Rev. 205	Preparation of an Area Coverage Design	July 1963
Add. 218	Annual Cost Data for System Design Purposes	June 1963
Rev. 326	Application Guide for the Preparation of Part III, Specifications for Detailed Toll Office Equipment	May 1963
New 424	Design of Subscriber Loop Plant	August 1963
Add. 701	Station Installations	July 1963
Add. 805	Station Protection	June 1963
Rev. 940	Use of Mobile and Fixed Radio Telephone for Subscriber Service and for Operation and Maintenance	April 1963

Ringing Systems

The introduction of 3000 ohm loop designs in TE & CM Section 424 requires more precisely manufactured ringers and more stable higher voltage ringing generators than have been required in the past in REA borrowers' systems.

REA Specification PE 40 for "Ringing Generator Equipment" has been issued to ensure that high quality ringing generators are used in all new projects. This is the first of several improvements in the station equipment and protection field designed to reduce maintenance. The effective date of this specification is October 1, 1963. All jobs bid after that date should specify primary and standby ringing generators complying with PE 40 which have been accepted for listing in the "List of Materials Acceptable for Use on Telephone Systems of REA Borrowers."

REA Form 558c, "Detailed Central Office Equipment Requirements," dated October 1962, still recognizes vibrators as being acceptable for standby service. However, vibrators should not be used in systems which involve loops exceeding 2000 ohms. Vibrators have a tendency toward frequency

drift and poor voltage regulation which make them unsuitable for use on 2000 to 3000 ohm loops. Although transistorized ringing generators are more costly than vibrators, the cost of transistorized ringing generator equipment is not a large item in the overall cost of a switching system.

In view of the above objections to vibrators, existing systems which use vibrator standbys should replace the vibrators with d.c. powered equipment complying with PE 40 when any loops are extended beyond 2000 ohms.

Existing ringer designs are being tested to determine their ability to ring on 3000 ohm loops. Those that are found to be satisfactory are being added to the list of acceptable materials in a new 3000 ohm loop ringer category. All ringers used on loops exceeding 2000 ohms should be selected from the 3000 ohm loop ringer category. We expect that several makes of ringers on our present list will qualify but at this time the Stomberg-Carlson Type 83 ringer is the only one which has been accepted. Care must be exercised to ensure that the ringers selected will fit in the telephone sets being used in the project.

REA Microwave Equipment Specifications

The draft of a proposed specification for microwave equipment has been submitted to the industry for comments. It is planned to have specification in final form for the forthcoming Symposia.

Improved Mobile Telephone System (IMTS)

TSD staff representatives have been invited to observe the trial installation of the Bell System IMTS at Harrisburg, Pennsylvania. The IMTS development was mentioned in Newsletter No. 29, dated July 1962.

Buried Plant Maintenance, REA TOM 1356.6

This TOM has now been submitted for printing. It is a detailed explanation of the types of trouble arising in buried plant, what test equipment is available and how to use it in locating trouble.

D66 Loading Transmission Test Results

TSD transmission engineers recently completed tests of D66 loaded circuits E at two locations in Iowa which use E-6 type repeaters. One set of tests was made at Lime Springs, Iowa (Iowa 501) and another set at Monona, Iowa (Iowa 583). The tests were made to verify the available theoretical data. The results show that the loading gives better transmission improvement than indicated by the theoretical data. Therefore the data in REA TE & CM-430, "Subscriber Line Loading" is being revised and should be available for the late 1963 symposia.

Reliable Electric Co. RB Splicing Connectors

The Reliable Electric Company RB splicing connector is suitable for splicing paper insulated cable and plastic insulated cable guages 24 and 26. It is not suitable for use on 19 or 22 gauge conductors nor in ready-access enclosures. It is not moisture proof, that is, it is not a "filled sleeve." These connectors are not listed by REA for borrower's use.

Fiberglas Pedestals

REA has instituted field trials of substantially improved Fiberglas pedestals for use in locations where atmospheric and corrosive conditions are destructive to metal pedestals. Such locations are in seacoast salt air atmospheres, in oil fields, or industrial areas having corrosive atmospheres.

Cable Carrier Equipment

The 1963 lightning season to date has proven the effectiveness of the use of internally protected d.c. powered carrier repeaters which use carbon blocks and zener diodes as protective devices. There have been no failures of such repeaters reported to date in 1963 whereas a number of these repeaters were vulnerable in the 1962 lightning season.

Trunk and subscriber cable carrier equipment is available for operation over 40 to 50 miles of 19 gauge cable. TSD engineers would like several such installations to be classified as test sites. Please submit your recommendations to your branch chief.

Modifications to REA TE & CM 325, "Application Guide for the Preparation of Detail Dial Central Office Equipment Requirements"

Addendum 1 to REA TE & CM-325 has been sent to the printer. It modifies six items in the Application Guide.

1. REA desires utilization of Long Line Adaptors with 24 volt booster battery for long subscriber loops of up to 3175 ohms including the telephone set.

2. REA now requires ringing current generators which meet the requirements of the new Specification PE-40, effective October 1, 1963.

3. When reverting call by directory number only is specified for terminal-per-station switchboards, a distinctive tone or recorded announcement can be used to indicate a reverting call to the calling party. A distinctive tone to the called party is considered acceptable.

4. REA recommends that the initial number of connector terminals be increased by approximately 10 percent in TPS switchboards because of intercepted terminals.

5. REA recommends that where frequency marking is supplied in COs having 1000 or more connector terminals that a frequency marking alarm panel be provided.

6. Where "loop around" transmission test equipment is to be provided, it can be 1000 cps or 3 or more frequencies, such as 300, 1000 and 3000 cps (or other frequencies).

Toll Ticketing Equipment Specification Revision

The toll ticketing equipment specification revision is in draft form for comment by the industry and by REA staff members. The revision is intended to permit competitive bidding on this equipment.

Direct Buried and Manhole Splice Cases

Consideration is now being given to the acceptance of cast iron splice cases designed for direct burial and for use in manholes on double jacketed cables. It will be illustrated in the forthcoming revision of REA splicing standard PC-2.

Figure 8 Distribution Wire Dancing

Few cases are being reported of DW dancing. It is thought that there may be more cases and that there is laxness in reporting this trouble.

Unacceptable Cook Station Protectors

Cook 501-300 and 501-310 station protectors have been removed from the REA "List of Materials Acceptable." There may be stocks of these in the store rooms of borrowers. They should not be placed in plant.

Cable Samples Required

This is a reminder that sample pieces of cable from each new project should be submitted to TSD.

Test Plowing in Rocky Ground

REA representatives are to observe the plowing in of about 25 miles of high density sheath cable in the plant of the Bolivar Telephone Co., Bolivar, Missouri (Missouri 547). The object is to test the feasibility of plowing in cable where here-to-fore the rock conditions were considered prohibitive.

Figure 8 Cable Shields

Recently submitted samples of Figure 8 cable show that some projects are using aluminum shields which have been prohibited since February 1963.

Figure 8 Cable Construction Costs

Bids on some projects show higher costs for Figure 8 cable than would result if conventional lashed cable on strand were used. It has been expected that the Figure 8 cable would be less costly than conventional construction. When contractors have had experience placing Figure 8 cable, it is believed the cost situation will reverse with Figure 8 cable proving to be the cheaper method.

Adhesion Tests of Polyethylene on Figure 8 Distribution Wire

Prior to the installation of Figure 8 distribution wire, every reel should be checked to determine that the jacket does not rotate freely around the support wire. This may be done by firmly grasping the facility at the reel-end with the hands approximately six inches apart and rotating in apposite directions. If there is any rotation of the jacket around the support wire, the facility should not be used.